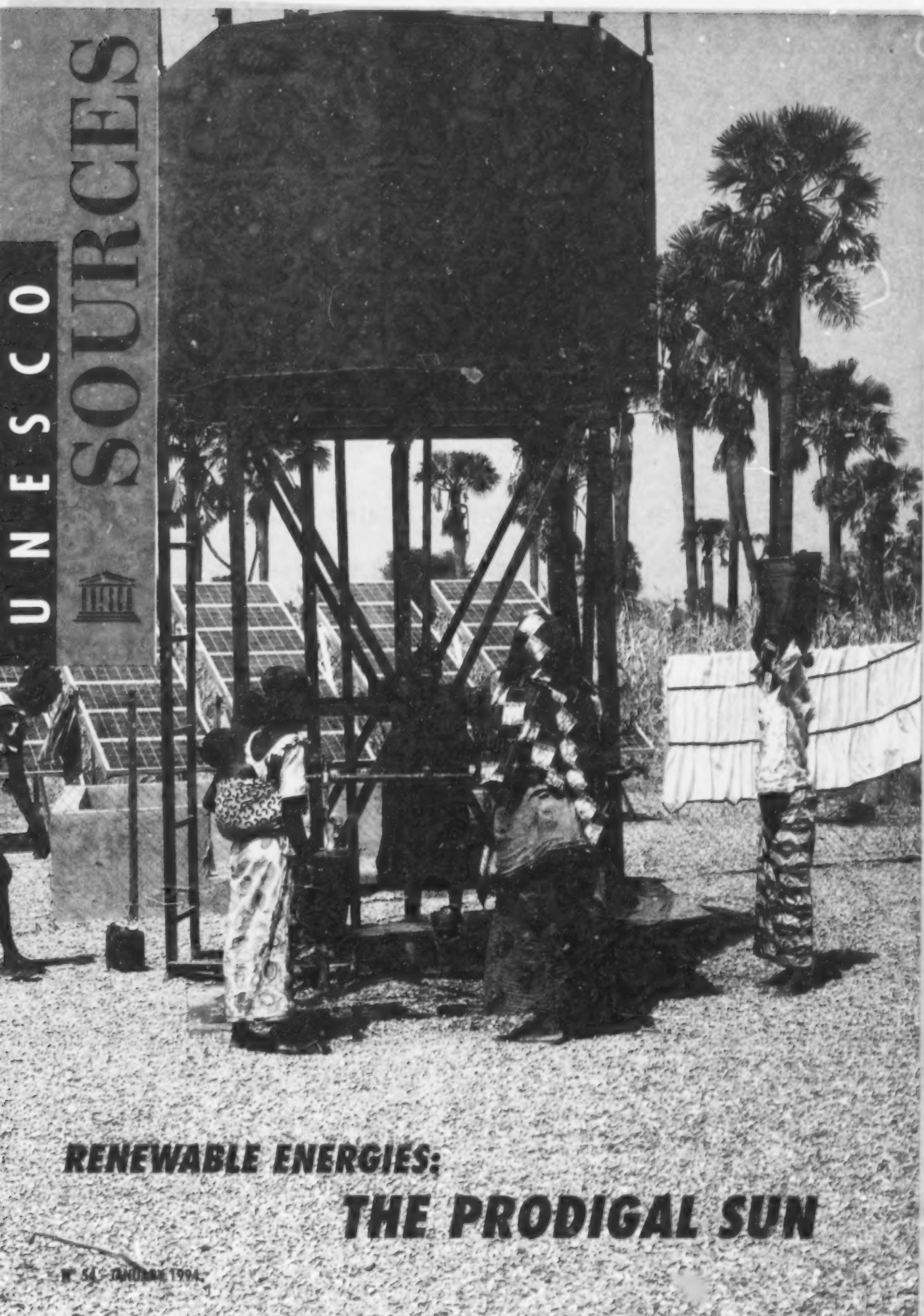


UNESCO

SOURCES



RENEWABLE ENERGIES:

THE PRODIGAL SUN

N° 54 - JANUARY 1994

Readers, we have reserved this page for your comments, suggestions and criticisms. Consider it yours!

FOR WHOM THE BELL TOLLS

Jurgis Dvarionas, Chairman
Cultural Foundation of Lithuania
Vilnius

✉✉✉ UNESCO Sources enjoys a large reading audience at the Cultural Foundation of Lithuania. Since our secession from the Soviet Union, we have to discover the world anew, and please believe me, this is a more exciting process than before. Reading your magazine makes us feel more a part of the world, sharing its problems. Moreover, thanks to *Sources* we encourage our people to observe and celebrate UNESCO International Days - which further brings a sense of belonging.

We are deeply moved by one of UNESCO's initiatives - the Chernobyl "Build a House" Programme. Lithuania understands and shares the sympathy of the whole world for those affected by the catastrophe, particularly as we have a monster of the same type in Ignalina ("Never ask for whom the bell tolls..."). For several summers we had summer camps for Chernobyl children.

We would gladly help the UNESCO Chernobyl campaign if we could afford it. But, in any case, we would like to offer a very concrete thing: the Lithuanian Cultural Foundation (LKF) published cultural heritage donation stamps (not for postage) a few years ago. They are still popular among stamp collectors in spite of the fact they have price markings in roubles. This, in fact, may show that our rebirth was begun while we were still part of the Soviet Empire.

If your magazine could encourage collectors to buy sets of our donation stamps, we would then be able to contribute by purchasing a few square metres of a house for the people of Chernobyl (see *Sources* No. 51, page 17). This would also bring a sense of pride in their cultural heritage to Lithuanian people all over the world. UNESCO does add value to every initiative of good will. We also hope that such a step would increase interest in the Baltic states and their fate. In this way, the benefit would be manifold.



Bravo for your initiative! Readers interested in LKF stamps, are encouraged to contact the Cultural Foundation of Lithuania, A. Jaksta 9, Vilnius 2600, Republic of Lithuania. - Ed.

ONE OF THE BEST

Julian Behrstock
Writer
Paris

✉✉✉ Having joined the UNESCO Secretariat in 1948, I came to know, over the years, the various publications designed to make the Organization's work better known throughout the world. It seems to me that *SOURCES* is one of the best. The articles are interesting; the text is well edited; and the format is attractive. Congratulations on a first-rate production.

THE RIGHTS OF WHOM?

Benoite Groult
Writer,
President of the Commission for the feminization of names for professional categories and functions
Hyeres (France)

✉✉✉ I read in the French weekly *Le Point* that UNESCO had adopted a non-sexist terminology, in particular wherein the expression "les droits de la personne humaine" (instead of les droits de l'homme/the rights of man) is concerned. Bravo! The magazine's only comment on this move was an idiotic remark which, presumably, they meant to be very funny: "Apparently the day of the 'honnête homme' (gentleman) and the 'beau sexe' (fair sex) is past". As though if you say 'la directrice' men will become brutal and cruel, and women will become ugly.



English got around "Rights of Man" with "Human Rights" long ago, but we still have other problems getting rid of "brotherly love," "the average man" "forefathers," ad infinitum. - Ed. English edition.

"LET THEM EAT CAKE"

Anne Hughes
Teacher
Paris

✉✉✉ I read with a certain dismay, in the article "An Invitation to Travel" (No. 52) in your November issue (No. 52), M. Michel Serres' proposal for a "Learning Without Frontiers" system, which would "make use of the enormous potential of communications technologies, radio, cable or satellite television, electronic mail, telephone, fax, etc.". We know, from *SOURCES* and other publications that for many decades UNESCO has been promoting education by satellite and "distance learning", but that, despite some progress, the world still deplores about 900 million adult illiterates and some 130 million out-of-school children. Great numbers of these, severely mal or undernourished, with parasite diseases and lacking even the basic essentials, have no books, even notebooks, even the paper to print them on, not to mention pencils, blackboards, teachers, and classrooms. And in any case, some two billion people living in rural or remote areas may never benefit from electricity except perhaps one day through still expensive solar energy, a condition which makes fax machines and electronic mail highly problematic. Michel Serres reminds me of someone else who suggested we "Let them eat cake" when the people cried for bread. She lost her head.

*** 1994 ***

HAPPY NEW YEAR

The staff of UNESCO Sources extends warm wishes to its readers for a very Happy New Year 1994, and thanks them for their continuing interest, enthusiasm and support. We look forward to the same fruitful exchange of information and ideas during the year ahead.

READEX
FICHE

UNESCO SOURCES No. 54 / JANUARY 1994

"... STOP TOLERATING THE INTOLERABLE"

Our daily life in 1994, which has been proclaimed International Year of the Family by the United Nations, must be marked by deliberate and persistent efforts to show generosity, understanding and love. The best way of strengthening the social fabric, of which the family is both the substance and the soul, is for us all to commit ourselves decisively to non-violence, tolerance and receptiveness to others...

Wars will not cease, either on the ground or in people's minds, unless each and every one of us resolutely embarks on the struggle against intolerance and violence by attacking the evil at its roots. Education offers us the means to do this. It also holds the key to development, to receptiveness to others, to population control and to the preservation of the environment. Education is what will enable us to move from a culture of war, which we unhappily know only too well, to a culture of peace, whose benefits we are only just beginning to sense. We are prepared to deal with the threats of the past but we are still helpless when confronting the threats of today and tomorrow.

The International Year of the Family must be taken as an opportunity to form a vast alliance to end the intolerable violence that the millions of children living in the street, forced to work, or displaced, represent. We must stop tolerating the intolerable.

Whatever our position in society, we all have a role to play, through our behaviour, in asserting the values of tolerance and respect for others and in promoting brotherhood and dialogue so that the force of argument can triumph over the argument of force. It is my hope that 1994 will enable us, if we pool our energies, to make progress in establishing the culture of peace.

Federico MAYOR, Director-General of UNESCO.
From his New Year's Message



Solar energy in the Alps.



Ariel and Peres.



Literary treasure trove.

Cover photo:
Solar pump in Africa
(Photo Photoworld).

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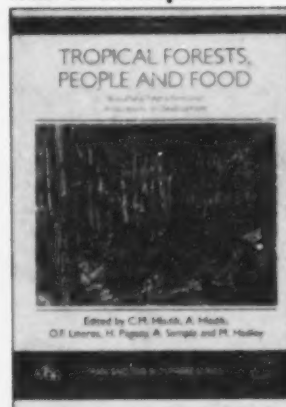
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BOOKS

TROPICAL FORESTS, PEOPLE AND FOOD: Biocultural Interactions and Applications to development



For as long as they have inhabited tropical forests, people have used, managed and transformed natural resources in their quest for food. The future of tropical forests and their human inhabitants will continue to depend on the ways - wise or otherwise - in which food is procured and produced. This book focuses on the biocultural interactions between tropical forest food resources and the communities they sustain. Six major sections deal with: evolution of tropical forests in relation to food availability; food production and nutritional value of wild and semi-cultivated species; food consumption and energy expenditure; feeding strategies and environmental variation; cultural factors in food choices; and management alternatives for the rational use of tropical forests in the years to come. The book's interdisciplinary approach will assist managers, planners, development agencies and concerned individuals make the right decisions about the future of tropical forests and the people who live in them.

● *Tropical Forests, People and Food: Biocultural Interactions and Applications to Development*, edited by C. M. Mushi et al., MAB Book Series Vol. 13, UNESCO/Parthenon 1993, 852 pp., 500 FF.

WORLD DIRECTORY OF TEACHER-TRAINING INSTITUTIONS

A collaborative effort between the International Council on Education for Teaching (ICET) and UNESCO, this first-of-its-kind Directory provides access to over 5,000 national government agencies, professional associations, and college and university-level institutions devoted to the training and development of teachers and other educational specialists in more than 170 countries. A unique global resource guide it aims at facilitating communications and opportunities for international co-operation in research and exchange of information and expertise.

● *World Directory of Teacher Training Institutions, UNESCO/ICET 1993, Trilingual Eng/Fr/Span, 515 pp., 120 FF.*

WOMEN IN DEVELOPING ECONOMIES: Making Visible the Invisible

How can we make the contribution of women visible and more productive? How can we better utilise human resources that are often illiterate? How can we build on traditional wisdom in order to modernise? How can we reduce poverty, and prevent women from being excluded from the more lucrative activities of the informal sector? These and many other questions are



addressed in the analytical studies and informative articles in this publication, aimed at sensitizing planners and decision-makers to the invisible socio-economic and cultural contribution of women in developing countries.

● *Women in Developing Economies: Making Visible the Invisible*, by J. Massiah, ed., BERG/UNESCO Comparative Studies 1993, 300 pp., 150 FF.

PERIODICALS

INTERNATIONAL SOCIAL SCIENCE JOURNAL

International Organizations: Theoretical perspectives and current trends

This history of international organizations dates only from 1815 when the Congress of Vienna set up the International Commission for Navigation on the Rhine. By 1919 when the League of Nations was founded, there were some 35. Since the end of World War II, the history of international organizations has been dominated by the United Nations. This issue (No. 138) reviews the strengths and weaknesses of various approaches used to conceptualize the nature and functioning of international organizations. Other articles also consider the delicate and changing balance between national sovereignty and international action, as well as the prospects for reform of the international civil service.

THE UNESCO COURIER

Deserts. The Sahara and the Gobi Desert, but also the steppes of central Asia, Antarctica, Greenland and the polar ice packs are vast deserted spaces. Articles in the January Courier describe how "ascetics have always been drawn to the desert, far from the world and the pleasures of the flesh"; how colour, light and mood there have cast a spell on artists; or the dramatic role the desert has played in the history of cinema. Other articles discuss rational management of arid

and semi-arid regions, a third of the world's land surface. These regions were the departure point, in 1950, of UNESCO action to mobilize the world community around environmental concerns. An interview with French scientist Theodore Monod opens the issue.

RECORDS



JAPAN

Ainu Songs

The Ainu, who once inhabited the Hokkaido, Sakhalin and Kuril Islands, and are now located exclusively on Hokkaido, are regarded as a "mystery race". Their tribal system and language have practically disappeared and it is only with a small number of old people that a dim memory of Ainu music has survived. However, many Ainu folk ensembles have recently set out to preserve traditional songs and dances. Singing, a major feature, is closely linked with the primitive religion of the Ainu who believe that elements of nature, plants and animals, particularly the bear, are gods. The most numerous and important songs, the Upopo and the Rimse, are, for instance, sung during tribal feasts such as the bear festival.

● *Japan: Ainu Songs. Music and Musicians of the World series, UNESCO/Auridis 1993. Cassette 52 FF, CD 109 FF.*

Publications and periodicals are on sale at the UNESCO Bookshop, or by order from UNESCO Publishing, 7 place de Fontenay, 75352 Paris 07 SP, and in Member States through national distributors. Catalogue on request.

1993 LAUREATES: EDUCATING FOR PEACE

Having survived the Second World War, Belgian psychologist and educationalist Madeleine De Vits decided she had to dedicate her life to the prevention of such horror. On the other side of the world, North Korean refugee Young Seek Choue came to much the same conclusion. He went on to found the Graduate Institute for Peace



YOUNG SEEK CHOUÉ
(Photo UNESCO/Michel Claude).

Studies (GIP) in the Republic of Korea - which shares this year's UNESCO \$50,000 Peace Education Prize with Ms De Vits.

The Institute is the only private institution in the world that offers post graduate studies in peace education. "UNESCO's Constitution - which states that 'it is in the minds of men that the defences of peace must be constructed' - served as our inspiration" explained Young Seek Choue at the award ceremony, held at UNESCO headquarters on December 10. One of GIP's major achievements has been the publication of the World Encyclopaedia of Peace, to which 350 scientists from more than 100 countries contributed.

Upon receiving the Institute's \$25,000 share of the prize, Young Seek Choue promptly returned the cheque, requesting the sum be

donated to UNESCO's programmes for peace education. "It is only through such programmes" he said "that we will solve problems such as the degradation of human dignity, the erosion of reason and conscience and the problem of human alienation."

Madeleine De Vits has concentrated her efforts on a younger generation of students. More than 40 years ago she helped establish UNESCO's Associated Schools project which are devoted to the teaching of peace through education. She has also written several books concerning the psychological and pedagogical problems of peace education, international understanding and the defence of human rights.

"Homo homini lupus" was how the British philosopher Hobbes once described the international system, and Ms De Vits agrees that "human beings remain their own worst enemy". "But we must continue to fight against this... and above all, we must con-



MADELEINE DE VITS
(Photo UNESCO/Michel Claude).

centrate on children - to lead them to actively want peace, because peace is something that must be desired by all before it can be achieved."

S. W.

MOTHER TERESA: OF PEACE AND DIGNITY

A special ceremony was held in Calcutta (India) on December 18 for the presentation of the 1992 Peace Education Prize to Mother Teresa.

The ceremony had been planned for last October, but had to be delayed when Mother Teresa fell ill.

Director-General, Federico Mayor, who was in India for the Education for All Summit (see page 23), made the trip to Calcutta especially to present the \$50,000 prize which the nine-member international jury had awarded "in recognition of the achievements of a life entirely devoted to serving the poor, promoting peace and fighting injustice".

Born into an Albanian peasant family on August 27, 1910 in Skopje in the former Yugoslav Republic of Macedonia, Agnes Gonxha Boaxhui went to Ireland in 1928 to enter the Irish order of the Sisters of Loretto at age 18. Only six weeks later, she sailed to India as a teacher, subsequently requesting permission to work with the poor in Calcutta.

She left the order 20 years later, in 1948, to found the Society of the Missionaries of Charities - a Roman Catholic congregation of women dedicated to the poor - in Calcutta in order to serve the "poorest of the poor". In 1950, she became an Indian citizen.

Mother Teresa first started an open air school for street children, then, helped by donations, she opened schools, orphanages, clinics and, in 1957, a special centre for lepers. In 1963 the Indian government awarded her the Padmashri ("Lord of the Lotus") for her services to the people of India. In 1964, on his trip to In-

dia, Pope Paul VI gave her his ceremonial limousine, which she immediately raffled to help finance her leper colony. By 1979, the year in which she won the

Nobel Peace Prize, the Missionaries of Charities had 200 branches in 24 countries.

Mother Teresa is the 12th recipient of UNESCO's Peace Education prize, created in 1980 through a donation from the Japan Shipbuilding Industry Foundation. At the presentation ceremony, Mr. Mayor paid tribute to her life's efforts, saying that through her example of active charity she had taught that true peace was inseparable from the dignity of each individual.

Accepting the award, Mother Teresa said that works of love are works of peace. "It is therefore important that we pray, because the fruit of prayer is the deepening of faith and love."

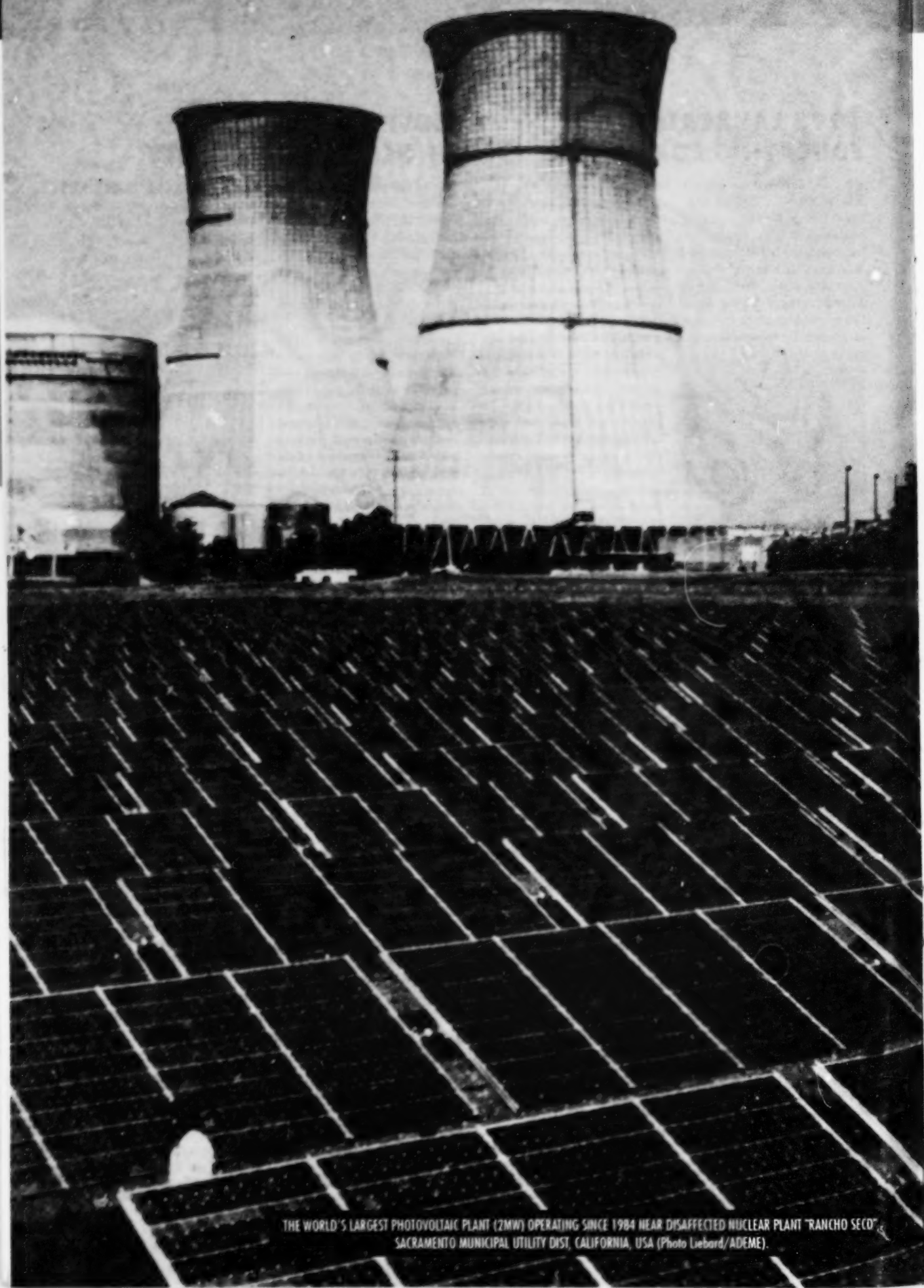
She announced that the prize money would go to build an extension to the Nirmala Kennedy Centre, a home for the handicapped that she runs in Calcutta.

● **FELIX HOUPHOUËT-BOIGNY** "has been a fertile source of inspiration for UNESCO", through his "quiet determination in the quest for peace" and "generous and warm spirit so characteristic of a profoundly

human Africa". In his tribute to the President of the Côte d'Ivoire, who died on December 7, Director-General Federico Mayor also expressed his "strong emotion and deep sadness" at the loss of a

"particularly dear friend". It was in recognition of Houphouët-Boigny's "tireless" struggle to build his country and defend Africa's interests that UNESCO created in 1989 the annual peace prize bearing the

late president's name. In 1991, the first award went to South Africa's Nelson Mandela and Frederik De Klerk, while this year the prize was attributed to Yasser Arafat and Shimon Peres.



THE WORLD'S LARGEST PHOTOVOLTAIC PLANT (2MW) OPERATING SINCE 1984 NEAR DISAFFECTED NUCLEAR PLANT "RANCHO SECO"
SACRAMENTO MUNICIPAL UTILITY DIST, CALIFORNIA, USA (Photo Liebard/ADEME).

THE PRODIGAL SUN

After a long eclipse, due to the low price of oil since the early 1980s, is solar energy making a comeback? Although consumption of oil, coal, and gas continues to increase, a new awareness of the problems linked with fossil fuels, and particularly of the energy-environment-development correlation (p. 12), is focusing attention on "soft" energies and related R&D. French scientist, Michel Rodot (p. 11) explains, however, what we cannot - but also what we can expect of solar energy, notably in remote areas of the Third World where two billion people may never be connected with the electric grid (p. 13). In fact, photovoltaic electricity is changing the lives of at least one such village in Niger (p. 14) thanks to people like African scientist Dan Dicko (p. 9). This month's Focus also looks at what UNESCO is doing to promote renewable energies through training and information activities (pp. 15-16) and finally, opens a new, richly-illustrated, album, "The Sun" to extract some of the myths and representations of our lucky star (pp. 10-17).

Who now remembers the traumatic oil price hikes of 1973 and 1979? The collapsing cost of a barrel since the mid-1980s has calmed fears that oil prices might skyrocket once again. It has also dulled the urge for a revolution in how we produce and consume goods so as to use less of a commodity we are sure will become more expensive. Even the growing awareness that burning fossil fuels is a major cause of environmental damage has not slowed this headlong rush to use more and more oil. The short-term view prevails. And yet...

Twenty years ago the experts were insisting that reserves of black gold were limited and concentrated, and warned that countries under its spell would sooner or later pay the financial and political price of dependence on a handful of producing countries. This certainty - short-lived - sparked keen interest in alternative forms of energy, nuclear of course, but also solar, wind, geothermal, biomass, and hydro-electric power from micro-dams. These sources combine three major advantages: they use raw materials that nature renews, that are cheap and often free; they are available in remote areas, where they can be scaled to suit needs ranging down to family level, and can therefore be exploited in a decentralized way; and they do not degrade the environment.

Thus the prospects of exploiting these renewable sources began to raise high

hopes. Scientists worked hard to develop and popularize solar energy conversion systems. It was in this context, and influenced by high oil prices at the time, that the UN Conference on New and Renewable Energies (Nairobi, Kenya, 1981) forecast that by 2000 these energies would account for 32 to 56 per cent of world commercial consumption - as opposed to "traditional" energy like the donkey or wood. We are still a long way off, since these energies represent no more than 19 per cent of world total (6 for hydraulic, 11 for non-commercial and 2 for "new" energies - solar, geothermal, etc.), as compared with 76 for coal, oil and gas, 5 for nuclear.

LOPSIDED BALANCE

With oil selling for less than \$14 a barrel - a price barely covering costs - and supply exceeding demand, extraction and consumption have taken off again, growing by about 1 per cent a year. Yet the precarity of this energy in the long run, the harm it is doing, and lopsided balance between concentrated oil fields and widely dispersed consumers is increasingly apparent.

On a world scale, the oil-bearing regions are very restricted. Some 77 per cent of total reserves are concentrated in the 13 OPEC countries, and 66 per cent in six of them located in the Middle East - while the UN counts 184 members. Moreover, most consumers, including some of the biggest

(Japan, Germany), are not producers, and some high producing countries consume very little. In 1990 the industrialized countries (North America, Western Europe and Japan) produced less than one-fifth of the world's oil but consumed over half. On the other hand, Africa uses only 3 per cent of world production, but contributes 10.

These costs will be inflated by mounting demand for non-traditional energy, spurred by a combination of increased population growth, urbanization, modernization of production methods and consumption - for some people at least. World population is expected to swell from 5.6 billion now to 11 billion by the middle of the next century. Most of this growth will come in the Third World, whose population will increase 76 per cent by 2025. This is why the World Energy Council forecasts that energy demand will increase by 50 per cent between 2000 and 2020.

If this demand continues to focus on fossil fuels - nuclear power will remain marginal in the Third World for both political and technical reasons - an energy bottleneck may strangle development in the non-oil producing countries of the South and eventually threaten their very survival. To avoid this fate they will have to devote 10 to 15 per cent of their investment budgets to the energy sector. If this effort is beyond their means, we can expect that about 35 per cent of world population will be

living in acute energy poverty by 2020 and nearly two billion people in rural areas will still be living on the fringes of society, without electricity and relying on non-marketed energy for 30-45 per cent of their needs.

This correlation between energy and development is paralleled by another, equally strong, between energy and the environment. The facts are now clear: emissions of carbon gases and sulphur and nitrogen oxides from burning petroleum products, natural gas and coal are still on the increase. The concentration of CO₂ in the atmosphere has grown by 30 per cent since the start of the Industrial Revolution and is rising at an annual rate of 0.5 per cent. The rate for CFCs is 4 percent.

There is increasing evidence that these emissions are intensifying the greenhouse effect (thereby warming the planet), damaging the ozone layer and causing acid rain. We know today that the burning of oil, gas and coal contributes about half of the greenhouse gases and at current rates will be responsible for 65 per cent by the year 2025.

Furthermore, the vast majority of rural people in Third World countries cannot afford fossil fuels and are meeting their mushrooming energy needs by burning massive quantities of wood. This in turn leads to deforestation and desertification, with disastrous effects on the climate. And nuclear energy, even though it creates no polluting gases, produces radioactive

wastes that pose acute long-term storage problems, not to mention the possibility of accidents like the Chernobyl catastrophe.

This intermingling of concerns about energy, development and the environment was at the heart of debates at the 1992 United Nations Conference on Environment and Development at Rio de Janeiro (known as the Earth Summit). The discussions clearly established that the major challenge facing humanity as a whole is how to protect the environment while satisfying demand for energy.

The challenge forces the industrialized countries to face up to their responsibilities and sets a dilemma for the developing world. Although growth is a perfectly legitimate aspiration and energy needs must therefore be met, environmental protection requires the vicious energy/pollution circle to be broken. This means that machines using polluting forms of energy, for both industrial and personal purposes, will have to be replaced by highly energy-efficient equipment which has a minimal negative impact on the environment.

This will have to be paid for, but in a differentiated way. The industrialized countries are the richest and the most polluting: it is estimated that they are responsible for 80 per cent of greenhouse gas emissions. They will therefore be expected to foot most of the bill, both in their own backyards on the principle of "the polluter pays" and also in developing countries,

through technology transfers and financial aid. Rightly or wrongly, these countries feel that as they are already struggling with population explosion and recession they should not have to sacrifice their economic growth on the altar of environmental protection.

Be that as it may, the only way to meet to this challenge, in both the North and the South, is to expand the use of renewable forms of energy as quickly as possible. In the North they could gradually complement conventional energy, especially for domestic and water heating.

Their direct cost may well be higher today, but a strict comparison would have to take into account the indirect costs of the nuisance created by fossil fuels. Moreover, the cost of renewable energy sources would fall if their use became widespread, through economies of scale and the advances made by the research programmes they would stimulate.

ISOLATED RURAL AREAS

Lower costs would make using renewable energy even more attractive in the South, especially in areas where it is already irreplaceable. For nearly half the population of the planet - the 600 million families more or less isolated in rural areas of the Third World - connection to the national grid would be prohibitively expensive, even in the long term, and not economically viable because consumption would be too low.

But is this a reason for abandoning them to their fate in defiance of all the norms of fairness. Renewable energy sources are the only possible way of providing them with a minimum of comforts (lighting, pumped water and health care), with the means to keep medicines in good condition, to maintain contact with the outside world (radio, telephone and television), and a power supply for irrigating a vegetable plot or starting a small-scale business.

"Solar" power is therefore an essential means of developing these rural areas, slowing the exodus to the big cities and combating the impoverishment of societies that represent nearly half of humanity. Renewable energy sources are not only crucial for bridging the widening energy gap and essential for protecting the environment right now: they are one of the keys to tomorrow's development, especially if we want it to be long-lasting.

Boris BERKOVSKI & Osman BENCHIKH

UNESCO AND RENEWABLE ENERGIES

The greatest obstacle to the development of renewable energies is a dearth of relevant information at all levels, from decision-makers and users, to engineers and technicians who lack the necessary skills. UNESCO'S action in this domain, therefore, focuses on training and information programmes to sensitize both specialists and the general public to the possible utilization of renewable energy resources, and their place within the global energy picture, especially with regard to environmental considerations and the requirements of sustainable development.

One of the main objectives of the information programme is the development of an Energy Knowledge Bank on renewable energies and energy conservation, of which a component is an on-line referral database ENERGY also published as an International Directory (see p. 16). The database is complemented by an important networking programme, including several regional networks interconnecting the numerous institutions and organizations in the field. Among training activities, and in addition to study and travel grants, UNESCO has, since 1989, held a "Solar Electricity for Rural and Remote Areas" Summer School, and has begun organizing regional workshop-seminars, the first held recently in Marrakech (see p. 15-16).

Finally, as an offshoot of the Rio Earth Summit (1992), and co-sponsored by the CEC, The International Energy Agency (IEA), The French Agency for Energy and Environment (ADEME), Eurosolar and other agencies, a three-phase WORLD SOLAR SUMMIT process was begun during a high-level experts meeting at UNESCO'S Paris Headquarters last July. The next step will be a World congress in 1995 to finalize plans for the Summit proper the same year, and launch the "World Solar Energy Decade" (1996-2005).

A SOLAR SOLDIER

For African scientist Dan Dicko, Director of the Regional Centre for Solar Energy in Mali, the great challenge today is to generate an awareness of what is at stake.

Beneath his affable, jovial air and deceptively dilettantish appearance, Dan Dicko, Director of the Regional Centre for Solar Energy (CRES) in Bamako, the capital of Mali, turns out to be a formidable duellist who does not mince his words.

His pronouncement at Marrakech during a UNESCO workshop last October on rural electrification created something of a stir. "More than half the solar electrification schemes launched by the European Economic Community in the Sahel countries have failed," he said.

Unphased by the murmur that went through the audience following his uncompromising words, Prof. Dan Dicko went on to list the reasons for this failure.

"Local populations were not involved," he explained. "Moreover, the systems and technologies installed paid little heed to the environment. Maintenance and training problems were mostly evaded, and there was no follow-up after distribution of the photovoltaic kits. Worse still, certain misconceptions have become rooted in the minds of the people. Farmers and breeders, for instance, think solar energy is free".

MOMENT OF EUPHORIA

Calmly, but marking his words with gestures, the Director of CRES drove his message home. "Everything was done too hastily, too superficially in a moment of euphoria. In fact, the way these technologies were implanted must be totally reviewed."

After studying in Dakar, and at the University of Montpellier (France), and earning two doctorates, one in organic chemistry and another in physics, Dan Dicko embarked on an illustrious teaching career, at the Universities of Montpellier, Abidjan (Cote d'Ivoire) and Niamey before assuming the position of Minister of Education from 1972 to 1974.

"I have always liked teaching because it keeps me on my toes and prevents me from becoming a 'fossil'," he said.

And indeed, his tone is eminently didactic when he insists that "With this type of project," he said, "you must first choose the most appropriate sites, assess the needs of the village and involve the inhabitants by making them participate financially in all stages. This can be done through man-

agement committees chaired by village chiefs."

"For any rural electrification project to succeed there must be a policy of incentives, with training provided at all levels, mobilizing the combined talents of experts, technicians and users, all pulling together.



Mainly, we must keep our heads clear and never lose sight of reality. Otherwise we'll never see the end of the tunnel".

For a decade, he was Secretary General of the Agency for Cultural and Technical Co-operation (ACCT) in Paris before taking over as Director of CRES in 1989.

Founded in 1983 by the West African Economic Community (CEAO) and CILSS (Permanent Interstate Committee for Drought Control in the Sahel) with technical and financial support from UNESCO, the Centre provides information, training, and technical assistance to nine countries in the region.

Each year engineering students and technicians from CRES attend UNESCO's month-long summer school (see page 16) which Dan Dicko has also attended both as participant and lecturer.

The Marrakech workshop has not only been valuable for me to tighten links with

centres in the Magreb, take stock of the latest technological developments, but also to renew contacts with colleagues met at the Summer School, and at UNESCO's Solar Summit (see page 8) last July."

In fact, Dan Dicko's eyes light up as outlines a project particularly dear to his heart - the creation of high level Solar Energy Councils in each region as recommended by the 150 world experts at the Solar Summit. The proposal materialized in Marrakech with establishment of a Mediterranean Solar Authority which is expected to be presided by King Hassan II, and Dan Dicko will present a proposition for an equivalent High Solar Authority for Sub-Saharan Africa at the next meeting of the CEAO Council of Ministries.

AN EYE ON HIS LIVESTOCK

Meanwhile, despite his passion for learning, he has never lost touch with the land, his family and friends in the village of Maradi in southern Niger where in 1934 he was born into a large family which he calls 'feudal'. In fact, he continues to keep an eye on his livestock and dreams of becoming a full-time farmer when he retires.

"Since in any human endeavour strength lies in unity, we must pool our talents to achieve rural electrification. This is especially true," Dan Dicko points out, "because the economic and social conditions of the Sahel countries are the same - depletion of plant cover, pauperization and increasing numbers of marginalized people. A concerted strategy must be found just as African skills and South-South cooperation must be developed."

The great challenge today is still, however, to generate an awareness of what is at stake in rural electrification which concerns some 2,000 million people in the world. By increasing the well-being of villagers and contributing to their social development, electrification acts as a catalyzing and stabilizing factor.

For this solar soldier, momentarily lost in thought, this awareness does, however, not yet exist and the end of the tunnel is not yet in sight.

Farida MOHA
Marrakech

ETERNAL FLAME OF CREATION

Presenting art works from museums, libraries and archeological sites worldwide, a new, richly illustrated, book reveals humanity's fears and awe, but also an age-old attempt to harness the sun.

"All that exists was born from Surya, the God of gods," states the Rig Veda¹, of ancient India, thus articulating the primeval homage all civilizations spontaneously paid to the sun since the dawn of history."

"As the bestower of light," continues UNESCO Director-General Federico Mayor in his preface to just-published *The Sun: Eternal Flame of Creation*,² "ancient culture generally identified the sun as the symbol of Truth, the all-seeing 'one eye' of justice and equality, the fountainhead of wisdom, compassion and enlightenment, and above all the fundamental source of fertility, growth and fruition..."

The sun touches all myths and legends. It is the absolute which humankind, like

times, it was a ram, a doe, a reindeer, a curled-up cat. In China under the Han dynasty, it was a crow.

"Cows in the Rig Veda are identified with the rays of the sun," writes art historian and diplomat Madanjeet Singh who conceived, compiled and wrote a long introduction for *The Sun*. His chapter on "Solar Universality of South Asian Cultures," is among contributions from over 20 scholars on the sun's creative influence on art, architecture, philosophy, religion, sports, folklore, dance and music.

The more than 550 colour illustrations in the book show how humanity has woven the sun into all aspects of life. In the complex mythology of Niger's Dogon peo-

try but borrowed aspects nonetheless. In their chapter on "The Sun in Byzantine and Russian Art," for instance, Russian art historians Vera Zaleskaya and Yuri Piatnitsky quote the Gospels: "And His face did shine as the sun, and His raiment was white as light" (Matt. 17.2), to show how they used the sun as metaphor. To illustrate how the Christian Church timed religious feasts to the solar calendar, they site Christmas as concurrent with the winter solstice and the related agricultural ritual of the "sun birth", and the feast of St. John the Baptist (June 24), marking the summer solstice with bonfires symbolizing the solar flame.

SUN KING

The sun stood for power. Alexander the Great wanted to rule "like the sun." Louis XIV of France called himself the *Sun King*. Japan identifies itself with the rising sun, a symbol directly related to the Emperor.

"I have been chasing the sun for years," writes Singh who collected much of his material during successive expeditions of UNESCO's "Integrated Study of the Silk Roads: Roads of Dialogue" project. Like that project, publication of *The Sun* was undertaken as part of the World Decade for Cultural Development.

The book points out how the sun always inspires fear as night falls like a haunting mystery. Old legends in the Brittany region of France tell how the sun, when it sets, goes to light up the land of the dead, or that it retreats every night to its lair to gorge itself with human blood.

The Mayas and the Aztecs offered it human sacrifices as appeasement. But it was just as likely to be devoured as to devour: people have always feared it might "go out", and eclipses have sometimes set off mass panics. Perhaps humanity is right. Scientists say it will shine on for billions of years. But you never know...

Nicolas MICHAUX



Prometheus, is always drawn to challenge but unsuccessfully, except on pain of eternal suffering.

The sun is the great mother figure, the source of all life, and like a father, expected to protect, heal and destroy. It is the eye of the heavens, watching over the universe with special powers, an orb, a concentric circle, a mirror. With the moon, it forms a perfect pair of opposites, the lion and the lamb. Through Apollo and Adonis, it has inspired poetry and given gold to painters.

It is the wheel of life, linked to earth, water and fire- to trees, mountains and animals, some imaginary like the phoenix who feeds off the sun's rays. In prehistoric

times, the blacksmith who stole his fire from the sun has a special place: he is the one who makes the plough and the ploughshare. Worship of the sun is especially common in rural societies, which court its favours with festivals throughout the year.

The door to eternity for the shamans of Siberia, in Hebrew mythology and in Hindu and Buddhist tradition, where it also symbolises truth and justice, the sun has a spiritual force which predates monotheism.

Nearly 3,000 years ago, Zoroaster (c. 660-553 B.C.) who so influenced Judaism, Christianity and Islam, made the sun a central part of his dualist theory of the universe. Christianity denounced it as idola-

1. Or Rg Veda, one of the Veda's 'divine knowledge' hymns, composed by Aryan immigrants to India around 1500-1000 B.C..

2. *The Sun: Eternal Flame of Creation*, by Madanjeet Singh, UNESCO 1993, illus., 400 pp., 450 FF.

PROMISING THE MOON? WATTS UP, WATTS NOT

French scientist Michel Rodot, a member of the Scientific Committee and teaching staff of UNESCO's Summer School in Solar Electricity, draws the line.

Transforming a free source of energy, the sun's, into electricity to produce more and obtain a certain comfort is a seductive idea. Without heating, without mechanical parts, photovoltaic cells are the only way to do the job with a good cost-benefit ratio: something to dream about?

In any case, the prospect is enough to stir passions and, waxing romantic, promise the moon along with the sun. Many optimistic souls have given in to this excess, thus arousing the suspicions of reasonable people who have been right to contest miracles, but wrong in doubting the tangible results of solar energy. Confronted with these two extremes, is it possible to keep a cool head?

Solar electricity is functioning and developing, but not under just any conditions, not for any use, nor at any price.

Yes, it is now possible, in a laboratory, with a tandem of photovoltaic cells with a gallium arsenide base to transform 30 per cent of the solar energy received into electric energy.

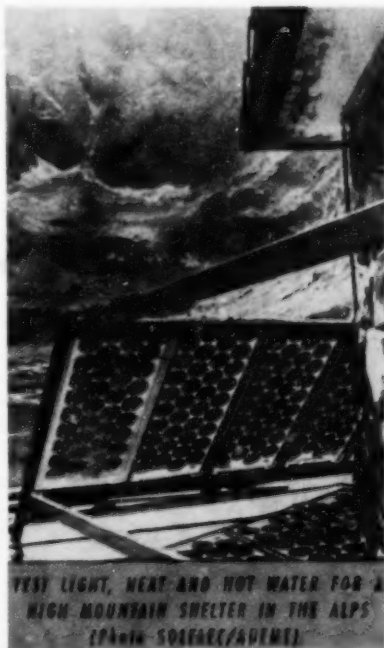
No, there is as yet no industrial process capable of commercializing cells with a yield higher than 20 per cent, and results currently produced are about 6 per cent for amorphous silicon and from 14 to 18 per cent for crystalline silicon.

ENERGY SATELLITES

Yes, hundreds of photoelectric semiconductors are still to be explored, but only one or two of them offer better possibilities than the silicon now in use.

Likewise, one can design "energy satellites" whose huge panels could collect the intense radiations of the interstellar "void" and transform them into electricity which could then be sent back to Earth through the intermediary micro waves. But such a project will not be economically feasible before the cost of launching satellites has been divided by 50.

Yes, solar energy is cheap and at the same time expensive. Expensive because the initial investment is high. To operate an average light bulb, the investment in solar cells, storage batteries, regulators, etc., requires an investment of about \$800. One hour of lighting with the bulb costs about 2 cents.



YES! LIGHT, HEAT AND HOT WATER FOR A HIGH MOUNTAIN SHELTER IN THE ALPS (Philippe SOSTER/ADRENT)

The cost of solar electricity is 100 times less expensive than that produced with chemical batteries, but only about six times more than that distributed by the electric grids, provided the link can be made. These costs, however, have been divided by 20 over the course of the last two decades and keep dropping slowly as production increases.

Yes, this method of energy production has found its market. Indeed, the major world manufacturers, mainly American, European or Japanese, would not be producing 600,000 m² of solar panels if there were no market.

First of all, in the industrialized countries where they notably equip isolated homes and communication relays. This utilization, however, can not pretend to replace or even complement "normal" distribution channels for at least another 20 years when costs will have been divided by three thanks to continuing research efforts.

In the Third World, it must be constantly repeated, solar energy offers the least expensive means of providing electricity for basic needs - and no more - to rural areas.

A recent study carried out in Morocco revealed that connecting a standard village (about 1,000 inhabitants) to the electricity grid costs an average \$100,000, whereas \$30,000 is sufficient to provide lighting and audiovisual facilities with a solar installation.

This same difference is valid for the two billion people living in rural and remote areas in developing countries. Instead of waiting several generations for a hypothetical connection to the national grid they can satisfy their basic electricity needs, evaluated at 6 KW per village - equivalent to the average power consumed by one household in an industrialized country.

STREET LIGHTS

They can thus have at their disposal a small pump (one to three KW) for drawing water or irrigating a cultivated areas, a micro plant serving as a "fountain of electricity" where users can go to recharge their batteries, a generator to light streets, school and community centre, operate TV, radio telephone or refrigerator to preserve pharmaceutical products or "kits for domestic lighting".

Yes, these installations are accessible to these rural populations if public authorities assume installation costs while users pay operating costs.

Yes, they are multiplying: 27,000 kits in Indonesia, 300 pumps in Mali, and the European Union (EU) is installing over 800 in the Sahel in 1993-94.

No, these solar systems cannot be expected to contribute in a major fashion to the development of the productive apparatus because of their feeble power or, if of sufficient dimensions, their prohibitive cost.

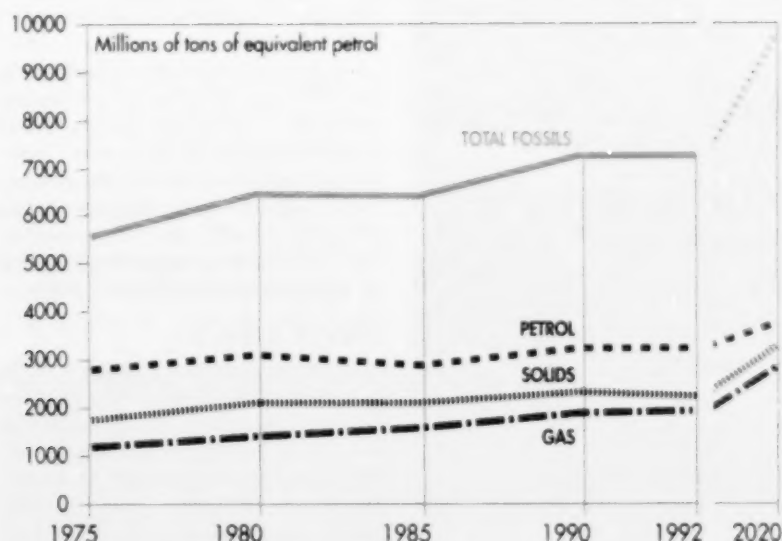
But their social fallout is essential, at a minimum price: they generate jobs and above all provide those elements of comfort and an opening up onto the rest of the world which curbs the rural exodus by reducing the gulf between the "modernism" of cities and the "backwardness" of remote and rural areas.

Michel RODOT
French Centre for Scientific Research (CNRS)
Administrator of the Foundation
"Énergies pour le Monde" (FONDEM)

THE RAVAGES OF FOSSIL FUELS

The growing use of fossil fuels leads to an environmental impasse. At the same time, the high cost of connecting rural villages in developing countries to the electric grid makes this an unattainable goal.

EVOLUTION IN WORLD PRODUCTION OF FOSSIL FUELS



PRODUCTION OF FOSSIL FUELS (SOLIDS, PETROL AND GAS) FROM 1975 TO 1992 AND PROJECTIONS FOR 2020 (Source: Institut français du pétrole and The World Energy Council).

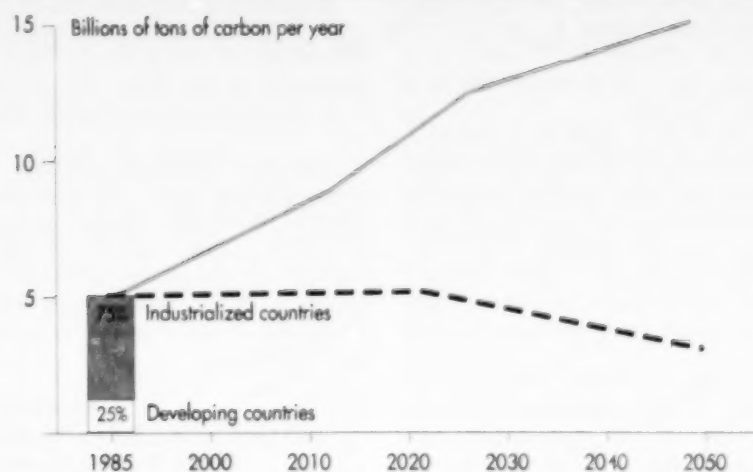
The graph opposite indicates the evolution since 1975 of the production of fossil fuels, comprising solid, petrol and natural gas measured in millions of tons equivalent of petrol. Projections for 2020 based on current statistics have been established by the World Energy Council.

Over a period of seventeen years, 1975-1992, the total production of fossil fuels rose by 29%, that is, an annual average increase of almost 1%. However, it's important to note that the growth in gas production was higher (37%) than average while that of petrol was somewhat lower.

The projections for 2020 also indicate continued growth in this production albeit at a slightly slower rate (35% during the next 27 years). This drop is attributed mainly to the expected increase in the rate of demand in developing countries, estimated at 5% per year, which will probably lead to a rise in production of solid fossil fuel and gas.

USE OF FOSSIL FUELS AND THE GREEN HOUSE EFFECT

SCENARIOS OF THE EVOLUTION OF EMISSIONS OF GROSS CO₂ ATTRIBUTED TO THE ENERGY SECTOR (Source: French Agency for Energy and Environment - ADEME - France).

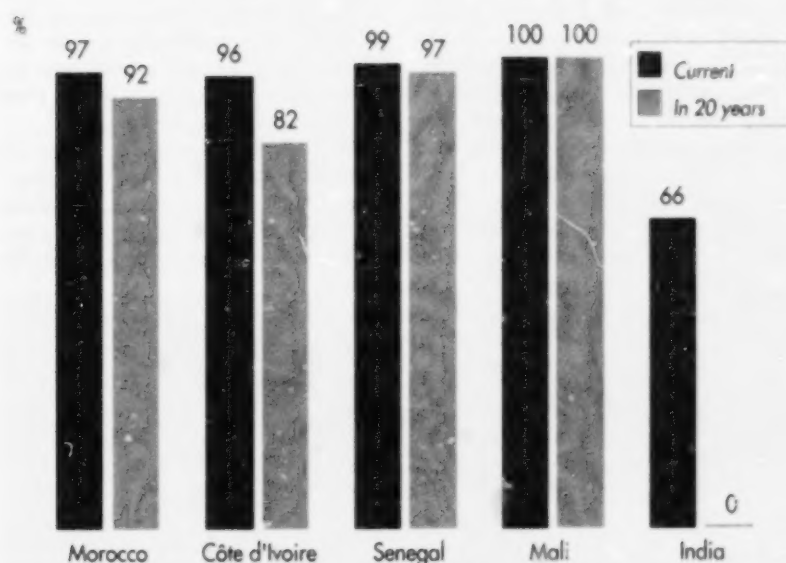


The green house effect is essentially due to the emission of gas in the atmosphere (CO₂ principally, but also CFCs, methane and NO_x). Energy production is half responsible for the aggravation of this phenomenon. The graph opposite presents two scenarios of the evolution of gross emissions of CO₂, measured in billions of oil tons of equivalent carbon per year, which come from energy. In the hypothesis that emissions continue unabated, these gases will triple by the year 2050, leading to a probable rise in temperature of 1° and about 65cm in sea level. These would not drop before the year 2020, unless there is a breakthrough in the use of nuclear energy, the substitution of gas for other fossil fuels, the ban on emissions of CFCs, the limitation of deforestation, as well as the introduction of renewable energy, by the beginning of the next century.

DELAY IN RENEWABLE ENERGY SOURCES

Unfortunately, this double dilemma has not lead to a notable development of renewable energies.

GRID ELECTRIFICATION, A FAINT HOPE



CURRENT AND PROJECTED RATES (20 YEARS) OF ELECTRIFICATION IN RURAL VILLAGES OF FIVE DEVELOPING COUNTRIES (Source: Réseau International Énergie solaire).

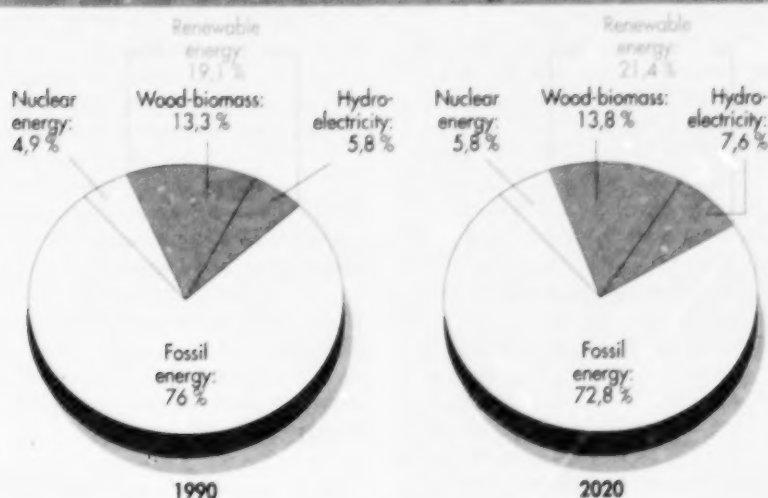
In most developing countries, the average cost of installing rural village grid electrification is extremely high. Prices often range from \$20,000 to \$30,000 for a village in India to more than \$300,000 for areas in Benin or Burkina.

The graph opposite shows the pourcentage of rural villages which still do not have access to electricity, in the five countries for which statistics are available: India; Ivory Coast; Mali; Morocco and Senegal. The graph also gives a twenty year projection based on current trends, of the pourcentage of grid electrification. With the exception of India, it seems likely thus, that under present rates of grid electrification, only the grandchildren, even the great grandchildren of today's rural inhabitants in developing countries will have electricity in their homes. This evidence is the best plea in favour of other forms of energy.

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SLOW GROWTH OF RENEWABLE ENERGY SOURCES

DISTRIBUTION OF ENERGY BY SOURCES FOR 1990 AND 2020 (Source: BDEME for 1990 and The World Energy Council for 2020).



Of the 9.335 million tons of petrol produced in the world in 1990, renewable energy sources (hydroelectric installations of all sizes and biomass, including wood and non commercial energy, as is often the case in developing countries), represented only 1.791 Mtep, or 19%. If one considers only commercialized energy, renewable energy sources are reduced practically to hydroelectricity and make up just under 7% of the world total production.

Projections for 2020, which take into account probable changes, limit the pourcentage of renewable energy sources to a mere 21%, of which 4% is attributed to new sources of energy from biomass.

Infography : A. Darmon

"THE SUN SHINES EVEN AT NIGHT"

Thanks to solar electricity, the village of Koné Beri in Niger is not only improving its quality of life, but also tuning in on the world.

Night travellers on the road to Ouallam, a town lying some 100 km north of Niamey, the capital of Niger, are always amazed to see lights shining in the middle of the bush - lights which could not possibly have been produced by traditional means, especially since there's not a power line in sight.

A mystery? Perhaps. But not for technicians at the Niger Solar Energy Office (ONERSOL) or the Ministry of Mines who, in 1991, had the bright idea of electrifying a village of 2,500 inhabitants in the middle of nowhere, now the famous "Solar Village of Koné Beri".

Moussa Gourousa, a villager who has clearly not yet quite recovered from the surprise, describes how, when the engineers came, they positioned a lot of equipment around the village. "Later they showed us rectangular objects (solar panels)," he said, "and explained that if these bits of glass were laid side by side and brought into direct contact with the sun's rays, they would produce energy".

This same energy could, they said, be stored in other devices for use at night. "I couldn't believe it," he added, "until I saw the village medical centre lit up and said to myself, 'the sun shines even at night!'".

NO NOISE

Another villager, Djibo Daouda, who had obviously spent some time in big cities, commented, "What is astonishing with these installations is that you don't hear any noise. There's no motor, and no pollution. You simply see the light come on or the water running from the taps."

After less than two years, the people of Koné Beri swear almost exclusively by the sun god. For the villagers, human ingenuity has judiciously harnessed nature. In fact, there have been three revolutions in this peaceful little town in western Niger. First, the installation of a solar pump serving seven standpipes which now provide drinking water for people and animals. Secondly, the Koné Beri health centre was electrified and fitted out with a refrigeration system to store not only food, but vaccines and other sensitive pharmaceutical products, a solar deep-freeze and a solar water-heater and cooker to sterilize medical equipment.

Not least, television sets, VCRs and new lighting, all using solar energy, have been installed in the community centre.

Koné Beri is a pilot project initiated by the Centre Régional d'Energie Solaire (CRES) in Mali, and financed by the Agency for Cultural and Technical Cooperation (ACCT) for a total 800,000 FF (about \$130,000). Once the experiment is considered conclusive, it will be extended to other West African countries.

The aim of CRES was basically to master and disseminate renewable energy techniques to meet the needs of populations

had to walk miles to fetch water. Now they simply go to the fountain and turn on the tap. Once, they also lived in dread of giving birth at night when someone would have to get out the storm lamps, fetch water, boil it and take everything to the dispensary. This ordeal now a distant memory, the women have even found time to plant small gardens beside the standpipes.

Since the installation of solar electricity in Koné Beri, the village's economic, social and cultural outlook, including health, has improved. Jobs have been created, and the villagers can gather round the



in isolated areas which are unlikely in the near future - and perhaps never - to be connected to the electricity grid.

The Director-General of ONERSOL, Mr. Abdoussalam Ba, says that with one million FF (\$170,000) a village could be electrified each year in Niger. "We have all the technical skills to do the job," he said.

The skills to which Abdoussalam Ba refers were developed thanks in part to financial, technical and educational assistance from UNESCO in the form of scholarships and training programmes, including high-level engineering courses in solar energy held in Niamey in 1978 and 1984.

"Niger's electrification experiment WILL succeed!" This is more than a promise. It is a cry from the heart of all the inhabitants of Koné Beri, particularly the village women who, with their children, are major beneficiaries. Only yesterday, they

television set to see what's going on in other parts of the country and in the world.

A tour to Koné Beri, moreover, has become a veritable "pilgrimage" for scientists visiting Niger. Indeed, the village is no longer set in its ancestral ways, but in a few short years has opened up to change.

Although the equipment is working well, the village chief, Mallan Joryon Yamba, points out that regular maintenance is indispensable to prolong the life of the equipment and avoid disagreeable surprises.

The ONERSOL technicians and the Ministry of Energy consider that the main difficulties are not necessarily linked with the new technology, but now depend just as much on how efficiently the system is managed by the village.

Issaka SAIDOU
Niamey

EMPOWERING THE TWO BILLION

UNESCO's Summer School in Photovoltaic Electricity and a new series of regional workshops are helping to train skilled personnel, boost public awareness and promote relevant energy policies.

Abdoulaye Coulibaly of Mali is working at the Institute for Applied Research (ISFRA - Institut Supérieur de Formation et de Recherche Appliquée) in Bamako, Mali, to experiment and refine the use of solar dryers to replace traditional techniques in the fishing industry.

Originally concentrated in the Central Delta of the Niger River, the project has now been extended to nearly all the country's fishing areas.

"Over 150,000 Malians live from fishing which represents 20 per cent of the country's exports after cotton and peanuts," he explained.

Coulibaly was one of 30 participants from 14 countries at UNESCO's month-long "Summer School in Photovoltaic Electricity for Rural and Remote Areas", held at Paris Headquarters for the fifth time last July 5 to 30.

Organized by the Engineering and Technology Division since 1989 in collaboration with the CEC, the Haut Conseil de la Francophonie, and other bodies, the School now counts over 150 alumni from 33 countries, mainly in North and sub-Saharan African, but also Turkey, Lebanon, Vietnam and Canada, and in South and Central America - Colombia, Bolivia, Guatemala, and Brazil.

ELITE TEACHING STAFF

Staged with an elite teaching staff of physicists, both theoretical and applied, and representatives of industry, the course is intended for men and women with technical or university training who are involved directly or indirectly with solar electrification.

Since it is arranged by modules, however, all types of specialists, including decision makers and energy managers, can attend a single lecture, undertake one aspect of lab work, participate in a technical visit or a given roundtable discussion.

"I intend to apply my refined knowledge of photovoltaic (PV) technologies to increase the quantity and quality of our dried fish production," said Abdoulaye Coulibaly.

He, in fact, expressed the hope that the technology could be used "to improve food conservation in general through more efficient and hygienic methods than those

traditionally in use. From a broader socio-economic point of view the course was extremely valuable," he added. "You must understand that in my country only about one million people out of a total population of

De Franlieu explained that the UNESCO course is an excellent complement to his company's own training activities which are more closely linked to specific projects such as the 600 solar pumps



eight million benefit from electrification of their communities."

Coulibaly's compatriot, Sekou Plea, who is currently doing lab research in solar energy applications, but mainly thermic, at the University of Valenciennes (France) was also grateful to refine his knowledge of PV technologies.

For Sekou Plea, however, the contacts made through the Summer School were equally useful. He nonetheless, regretfully noted that "if we had better equipment in our own laboratories to test essential materials, we could do a better job of spreading the technology."

In addition to visits to research centres, factories and various realizations in France, the School has, since 1992, extended this aspect of the programme to Belgium, Germany and last year to Spain, in collaboration with the Catalan Institute of Energy (Institut Català d'Energia/ ICAEN).

Along with four other French industrialists, Robert de Franlieu of French solar manufacturers Photowatt has lectured at the School for the past three years.

"We always know about 20 per cent of students," he said "which means that animated discussions between manufacturers and users on actual installations and component parts, can really get down to the nitty gritty."

in four sub-Saharan countries Photowatt is installing as part of a 1000-pump, \$38 million (35 million ECU) programme financed by the CEC in nine countries over the 1992-94 period.

"Our training falls within the context of a tight contract signed by both parties concerning the installation and its upkeep before any project is launched," he said. "This requirement aims at ensuring that a village become totally responsible for maintenance, both technically and financially," he said.

"The UNESCO Course is given in another spirit," said de Franlieu. "It aims at a higher level of engineer and technician. Sent by their countries or a regional authority, these young people will eventually play an important role in devising and carrying out energy policies in a rational way, hopefully avoiding errors of the past."

"The course also promotes a realistic approach, breaking down a certain number of illusions, demystifying solar energy," he said. "What is very important is that on both sides we make an effort to look at ourselves as partners. Some experts in developing countries see us simply as the ones supplying the technology which they would like to see transferred immediately."

De Franlieu went on to explain that manufacture of PV cells, however, is still

too sophisticated, experimental and costly to transfer.

"On the other hand," he said, "developing countries can produce other components and by developing solar electricity, reap 80 per cent of benefits, create jobs and improve the quality of life in their rural communities."

Many regional institutions like the Centre for the Development of Renewable Energies (CDER) in Algiers (Algeria) send engineers and technicians to UNESCO's Summer School. "For our higher level people," said CDER Director Maïouf Belhamel "the course is excellent from many points of view - to keep up with what is going on in the field, meet key people, form contacts with top-level faculty members, and, not least, meet other specialists in their own region."

REGIONAL WORKSHOPS

The Algerian CDER will organize a workshop-seminar on applications of solar energy to cooling and refrigeration in 1995 as part of a new UNESCO series, designed, at a still higher level, to evaluate applications of various aspects of the renewable energies, and more specifically to give national experiments a broader regional dimension and promote cooperation between institutions with common objectives.

The first of these workshops was organized in Marrakech (Morocco) last October 25 to 29 under the aegis of UNESCO,

by the CDER of Morocco, the Regional Centre for Solar Energy (CRES) in Mali, the Catalan Institute of Energy, a number of Egyptian centres and the Tunisian Ministry of Scientific and Technological research.

Devoted to the theme "Rural Electrification with Photovoltaic Generators," it was attended by 20 specialists from the three Magreb countries (Morocco, Tunisia and Algeria), sub-Saharan Africa, and the CEC. The next workshop will be held later this year in Egypt.

Taking stock of a great number of realizations in the region, participants nonetheless recalled that two thousand million people in isolated areas, in Africa and other parts of the world still lack electricity and may never be linked to the national grid.

"It is intolerable," said Fassi Fihri, Director of the Morocco CDER, "that on the eve of the year 2000, entire populations still have to use candles and petrol lamps."

Trying to explain why, despite their vast possibilities, the development of "soft" energies has, paradoxically, fallen far short of expectations, Dan Dicko, Director of CRES - Mali suggested that one of the reasons was the failure of projects because "local populations have not been sufficiently involved in the conception and maintenance of installations."

Other experts regretted a lack of technological autonomy. When it came to photovoltaics, however, Fassi Fihri, echo-

ing Robert de Frahan, was quick to insist that "the manufacture of silicon cells for solar conversion is still out of the question. This process makes use of a sophisticated technology which in order to be profitable, or even cover costs, presupposes an enormous market."

Still, he admitted that progress had been made. "Many other components of PV systems are already manufactured in Morocco and even exported. What's more, today in any souk or market, you will see merchants selling spices alongside others selling photovoltaic systems, and our compatriots who have emigrated or are travelling abroad are just as likely to bring back a 'solar kit' as a TV set, so injustices are being reduced."

One of the main recommendations of the seminar/workshop was for creation of a High Mediterranean Solar Council (Haut Conseil Solaire Méditerranéen) bringing together Heads of State in the region.

The first of such regional bodies, the Council would constitute a major effort, according to UNESCO Programme specialist Osman Benschikh, "to promote renewable energies by mobilizing the authorities at high level, sensitizing decision-makers and building public awareness in each region in preparation for the World Solar Summit in 1995." (see box page 8).

Betty WERTHER
with Farida MOHA, Marrakech

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TO FIND OUT MORE ...

The Engineering and Technology Division, Science Sector, UNESCO, 7 place de Fontenoy, 75352 Paris 07 SP, will, on request, provide further information on:

UNESCO DATABASE AND KNOWLEDGE BANK ON NEW AND RENEWABLE ENERGIES AND ENERGY CONSERVATION. The Database contains nearly 4,000 research and information institutions involved in NRSE as well as government agencies, trade and professional associations, training institutions, courses, networks, databases, journals and reference publications in 170 countries. It is included in the prototype edition of UNESCO's CD-ROM and can be supplied on diskettes/magnetic

tape. It is also published as the *International Directory of New and Renewable Energy Information Sources and Research Centres*, Third Edition 1993, by James & James Science Publishers, London.

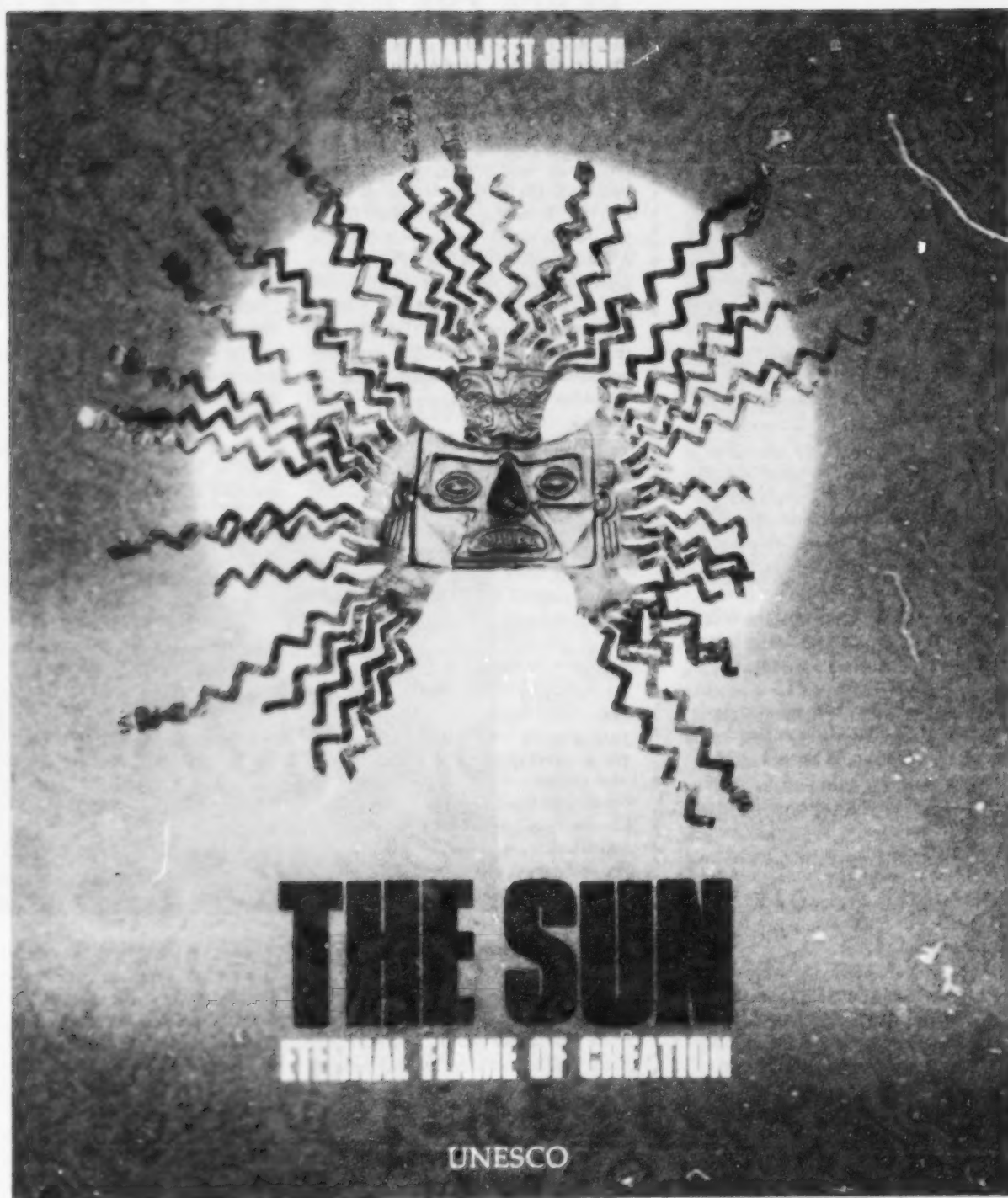
UNESCO SERIES OF LEARNING MATERIALS IN ENGINEERING SCIENCES. A 65-page bulletin gives details on multimedia learning packages (LP) (structured texts, computer software, including for self-assessment, and relevant video cassettes) prepared for energy engineers by an international team of experts. In addition to basic undergraduate LPs in engineering, the bulletin includes information on Postgraduate Learning Materials in Environmental Engi-

neering and eight modules on New and Renewable Sources of Energy - Mini-hydro power, solar electricity, geothermal energy, biomass, etc.

UNESCO'S SUMMER SCHOOL IN SOLAR ELECTRICITY FOR RURAL AND REMOTE AREAS. Description of programme, faculty, and details on two volumes of published courses on Photovoltaic Solar Energy (in French only) - Vol. 1: Physics and Technology of Photovoltaic Conversion. Vol. 11: Socio-Economic Aspects.

THE SUN: ETERNAL FLAME OF CREATION, by Madanjeet Singh, UNESCO 1993, illus., 400 pp. (see pages 10 and 17).

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PEACE THE DAY AFTER, OR IS IT?

• The ARCHIPELAGO PROJECT, A NETWORK OF INSULAR BIOSPHERE RESERVES set up last year within UNESCO's MAB programme, held its second meeting in Minorca (Spain) from November 26 to 29. About 15 participants represented the Hiiumaa Biosphere Reserve (Estonia), the Mar d'Iroise (France, the Balearics and Lanzarote, Canary Islands (Spain) and the Bijagos Archipelago in Guinea Bissau, a new candidate for BR status. Focusing on socio-economic and biological features of the BR areas involved, the specialists took stock of projects underway, including mapping of land use in the Bijagos Archipelago, exchanges of students and scientists, long-term ecological monitoring, comparative studies, and contacts with other insular BR areas interested in joining the network, notably those of Guadeloupe, the Central California Coast, the Scilly Isles and the Archipelago Sea in Finland.

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▼ A major step has been taken towards **EDUCATION FOR ALL** in the Maldives, with the opening on November 24 of a new Institute for Teacher Education. The Institute, which already has almost 300 students, was financed by the Arab Gulf Programme for United Nations Development Organisations (AGFUND) to the tune of \$475,000, under a UNESCO Funds-in-Trust agreement.

Apart from supervising the project's implementation, UNESCO was also involved in the architectural design of the complex which also houses a unit for the development of non-formal education and a centre for curriculum development, particularly in the area of primary education. This is in keeping with the government's commitment to provide universal primary education in the Maldives.



• Some 40 Arab and Israeli intellectuals meet in Grenada to prepare the way for a "culture of peace".

"In the beginning there was might," proclaimed Faust, reflecting thus Goethe's contestation of the Book of Genesis' assertion that "In the beginning was the Word." But there is an old Arab proverb that says, *A salaam kabal el kelaam* ("Peace comes before words."). And these were the exact words the Israeli Foreign Minister, Shimon Peres chose to quote in Arabic in his opening remarks before the UNESCO-sponsored international round table called "Peace, The Day After", held 8-10 December 1993, in Grenada, Spain.

Invitations to about 40 Israeli and Arab intellectuals and other officials went out in July 1993, two months before the historic

Arafat, leader of the Palestine Liberation Organisation. The occasion led to a noteworthy exchange of words between the two men.

"What can we open with this?" the one asked. "Peace," replied the other. But not just any peace. In the words of the PLO Leader, "the peace must be based on justice and respect of the other."

Yet if Yasser Arafat's pithy response reflects the historic search for reconciliation between Palestinians and Israelis, his Israeli counterpart expressed reservation on the means to get there. "Peace is too precious to be left to politicians, for I am speaking as a politician," Peres said.

FEDERICO MAYOR, YASSER ARAFAT AND SHIMON PERES (Photo UNESCO)



September 13 Washington peace agreement was signed.

The principal objectives of this conference were to discuss "how to make the transition from a war culture to a culture of peace" and to encourage "the nurturing of joint civil Israeli-Palestinian initiatives in the areas of culture, education, science, communication and human rights."

These aims are as compelling as the city in which they were set. Grenada was the perfect place for such a reunion. Jews and Arabs lived there in harmony for eight centuries under the Andalusian caliphate. "The children of Abraham have come home," wrote the Spanish press. In suitably bright sunshine on the magnificent terrace of the Alhambra, the mayor presented the keys of the city to Shimon Peres and to Yasser

Looking perhaps, to both the intellectuals present, as well as to the PLO Leader, from whom he would have liked to hear a sharper condemnation of the ongoing acts of violence, the Foreign Minister remarked, "it is not only maps and relations that we must change - views and perceptions must change as well".

Nevertheless, politics was never far in the discussions at the Grenada meeting. Indeed the conference was overshadowed by concerns for the mutual respect of the agreed upon peace timetable.

One PLO official, Leila Shahid pointed out that things were still at an embryonic stage. Other Arab participants noted that so far there had only been a handshake and felt that "there was'nt enough effort to date."

Many also remarked upon the conspicuous absence of such prominent Palestinians as Edouard Said and Mahmud Darwish. However, no one could deny that Mr Darwish wasn't there in spirit. In fact, an Israeli woman poet read a verse she had sent him five years ago. His absence was also implicitly regretted by Federico Mayor when, in his opening address, the Director-General read one of the writer's highly acclaimed poems.

For his part, UNESCO representative Naji Abu Khalil underlined that *"the continuing bloodshed in the Occupied Territories cannot be forgotten and UNESCO is fully aware of the risks and problems of such an initiative after decades of blood and tears."*

"The trust just isn't there yet," admitted Mark Kravetz, the French journalist of the newspaper Libération. *"So should we stop dreaming about the new day? Of course not,"* he emphasized. *"The UNESCO initiative is a good one and must continue."* Abu Khalil, referred to earlier explained: *"The discussions focussed mainly on everyone's roles. Where do politics end and culture begin? What should the priorities be?"*

CULTURAL DEBATE

Azmi Besharra, a Palestinian philosophy professor at Bir Zeit University, summarized well the major criticisms levied by the intellectuals. Unlike the political dialogue, he said, the cultural debate should not lead to *"compromises or half-measures."* For him and his colleagues, this meant essentially saying *"yes"* to *"dialogue"* and *"no"* to *"normalization."* There had been *"an occupier and an occupied,"* he underlined, and the Israelis should start by *"asking forgiveness"* from the Palestinians.

Other speakers added that before balanced relations could be established with the Jewish culture, Palestinians would have to overcome the obstacles which assail an oppressed culture. Israeli professor Michael Sela, of the Weizman Scientific Research Institute called for greater interaction *"between the people and intellectuals,"* though, he cautioned, these *"must not be done hastily."*

"The Weizman Institute, like other Israeli research bodies," he added, *"would be glad to open its doors"* to Palestinians and also *"help them with scientific and technological development."*

But these gestures of good will were considered by some to be insufficient. The Syrian-born poet Adonis said Judaism needed to bring itself up to date. Like Christianity and Islam before it, it had to *"open up"* in order to become part of the cultural diversity of the Middle East, while preserving its distinct cultural and religious heritage.

"For some of the participants, the meeting was a matter of going public about the contacts they had been having for a long time and at some risk to themselves," noted UNESCO's Eshar Naraghi.

CONSENSUS AND COLLABORATION

In spite of their diverse opinions participants were unanimous in acclaiming the success of the conference. While for many the discussions progressed mainly by trial and error and a number of questions remained unanswered several, such as the Moroccan writer Tahar Ben Jelloun and the Israeli historian Elie Bernavi, of Tel Aviv University, pleaded for more of these kind of contacts.

Claude Julien, for many years editor of the French newspaper Le Monde Diplomatique made a strong appeal for a *"coming together of Israeli and Palestinian intellectuals in the fields of medicine, sociology and literature; areas in which there has been very little mutual appreciation to date."* He also called for *"more association between musicians, poets and theatre people."* *"I would love to see initiatives by major European intellectuals to bring together young Israelis and Palestinians, much as had happened between France and Germany since the Second World War,"* he said.

Despite his *"modest"* hopes after this first meeting of its kind, Julien suggested setting up a *"committee for dialogue between Palestinians and Israelis"* and stressed the role UNESCO could play *"to ensure its non-partisan nature."*

But as UNESCO Director-General Federico Mayor told the opening session, *"No political or economic agreement can work without the ethical, cultural and human dimension which peace provides."*

"Fewer initiatives than the meeting in Grenada," he concluded, *"correspond better to the mission of UNESCO."*

• **WHAT KIND OF BASIC EDUCATION FOR ACTIVE CITIZENSHIP?** Such was the question under discussion by the 400 participants at a colloquium organized by



UNESCO at Headquarters from December 6-8 and held in conjunction with UNESCO's Collective Consultation of NGO's on Literacy and Education for All. The papers presented at the colloquium will be published and presented as the contribution by the NGOs concerned to the International Commission on Education for the XXIst century and the World Commission on Culture and Development. Major topics presented included: literacy; case studies of strategies that work; and managing human resources.

▼ "SPAIN AND PORTUGAL ON THE SILK ROADS"

Some 30 historians, scientists and other specialists took part in a two-day seminar which was organized in the framework of UNESCO's "Integral Study of the Silk Roads: Roads of Dialogue" project. Meeting at the University of Valencia (Spain) from December 15 to 17, 1993, the specialists unearthed a wealth of material covering ten centuries of production and trade between Orient and Occident (dating from the Andalusian period of the IXth century to modern day Portugal).

A LITERARY TREASURE TROVE

... 900 titles translated from 60 languages, and a list of authors that reads like the Who's Who of literature...

• The first phase of a major new project to develop the **STATE HERMITAGE MUSEUM** in St. Petersburg (Russian Federation) kicked off on December 14 with the signing of a Memorandum of Cooperation between UNESCO and the Government of the Netherlands, which has contributed \$1.2 million to help improve the museum's lighting, labelling, computerization, and the training of professionals. The renovation and modernization of the museum is one of the flagship projects of UNESCO's Programme for Central and Eastern European Development (PROCEED).

▼ March 1st is the deadline for applications for the 1994 **INTERNATIONAL MARINE ENVIRONMENT AWARD**.

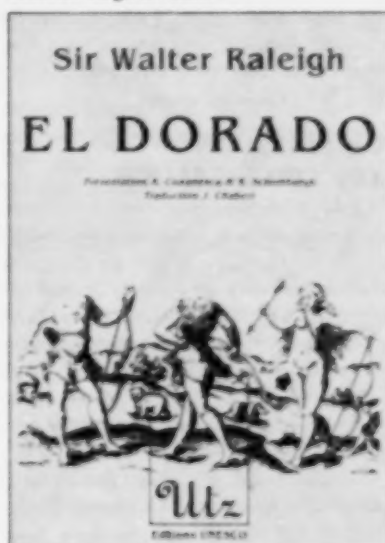
Organized by the World Underwater Federation with support from several agencies, including UNESCO, the prize is awarded to an individual, organization or company whose work has contributed to the protection of the marine environment. The award ceremony will be held at Headquarters on September 15, 1994.

• **WATER-BORNE DISEASES** kill some 14.6 million children under the age of five each year in developing countries. About 1.2 billion people are without safe drinking water, and some 1.9 billion have no access to sanitation. A new publication by UNESCO's International Hydrological Programme (IHP) entitled "Water and Health" provides, free of charge, a layman's guide to the scope and complexities of the problem and sets down a few basic steps for better and safer management of the planet's limited but increasingly demanded water supplies.

Division of Water Sciences



Shakespeare in Indonesian? Sophocles in Bengali? An anthology of Albanian poetry in English and ancient Egyptian texts in French? What publishing house would risk such offbeat translations and cover such an eclectic range of titles?



UNESCO's Collection of Representative Works boasts, in fact, some 900 titles from 100 or so countries, translated from about 60 languages of origin and co-produced with publishers from all corners of the globe. It has to count as one of the world's most original publishing ventures.

"The Collection was born in 1948" says Chief Editor Fernando Ainsa. "The aim was to allow readers from all over the world access to works of major literary or cultural importance not necessarily known outside their original national boundaries or linguistic communities."

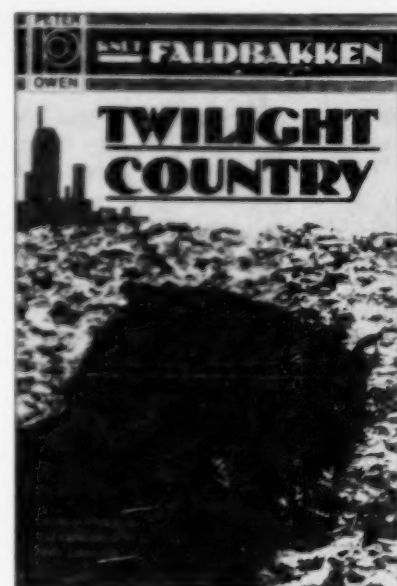
This doesn't mean that the Collection is limited to old classics. Alongside the translation of works by Aristotle and Averroes can be found those of contemporary writers such as Argentina's Julio Cortazar or Turkey's leading women writers, whose short stories have been translated into French for the first time and published in a remarkable anthology bearing witness to a rapidly changing society.

"A number of modern authors have achieved international recognition following the translation and distribution of their

works as part of this Collection," says Ainsa. "Nobel prize winner Yasunaru Kawabata, for example, was virtually unknown outside of Japan until the 1950s when UNESCO translated 'Yukiguni' ('Snow Country') into English, German, Italian and French. In 1972 we also translated it into Indonesian."

In fact the Collection's catalogue reads like the Who's Who of world literature, including a string of other Nobel prize laureates such as Henri Bergson, Albert Camus, Ernest Hemingway, Octavio Paz, Vicente Aleixandre, Ivo Andric, George Seferis and Halldor K. Laxness.

How does an author get included in the Collection? Works are proposed to UNESCO Publishing by Member States or their National Commissions, or by universities, research institutes, NGOs, translators and publishers. Ainsa concedes that the criteria may appear somewhat vague; supple and strict at the same time. "Most importantly, the work must be representative of a specific community or civilization," says the Chief Editor. "For example, the Mahapurana series on ancient Indian tradition and mythology, which has been translated into English from Sanskrit, provides a unique insight into all aspects and phases of ancient Hinduism, while 'Et si ton nom sauvait' - a bilingual anthology



of poetry from El Salvador - presents an intimate vision of a country that has been riven by civil war and is now trying to rebuild itself.

"Obviously the work must also have literary qualities, and it should be in keeping with the ideals and principles of UNESCO. It cannot, therefore, advocate war, racism or violence of any kind."

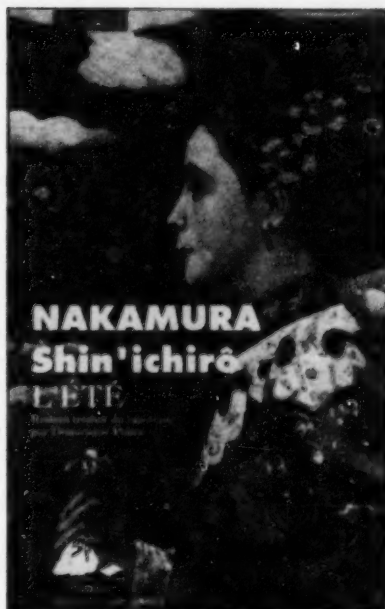
A PRESTIGIOUS LABEL

Since its inception the Collection has built up a solid reputation, and attracted the attention of major publishing houses everywhere. Columbia University Press in the USA, Gallimard and Utz in France, Peter Owen and Forest Books in the U.K, Litoral in Spain and Tokyo University Press are but a few of those who work with UNESCO Publishing on the Collection. "We offer a prestigious label and a worldwide sales network," explains Ainsa. Many of the works have proved so popular that they have been reprinted several times. The 2,000 copies of the French edition of "L'été" ("Summer") by Japanese author Nakamura Shin'ichirô - "a cross between Henry Miller and Marcel Proust" according to Ainsa - co-published by Editions Philippe Picquier and UNESCO Publishing in Paris, sold out in only one month.

Over the past few years the Collection has turned its attention to the literature of the former East bloc countries. "The fall of communism has seen a plethora of languages and cultures spring back to life," explains Ainsa, who is convinced that making the literature of these peoples known will help build the urgently needed bridges between them and the rest of the world.

Thus, English readers around the world now have access to anthologies of Chuvash poetry from the autonomous region of the same name in western Russia, or can lose themselves in a "Old Czech Legends" written by Alois Jirasek in the early 1890s.

For French readers the Collection has published "Le livre des héros" (The Book of Heroes) from Russia and Georgia, which was translated from Ossetie by the late and great French academic, Georges Dumezil. One of the most recent additions is an anthology of 20th century Ukrainian poetry published in Spanish and beautifully illustrated with contemporary Ukrainian art works.



Translation can be a problem, admits Ainsa, especially with the lesser known languages where there are few expert translators and inevitably "many arguments". Likewise, working out copyright details is also a complicated affair. "We spend a lot of time and energy getting copyright sewn up, especially where the authors have died and we have to deal with family and other third parties."

While opening up doors for lesser known languages and cultures by translating them into major languages such as English, French, Spanish and Arabic remains a priority, the Collection is also broadening its horizons. A deal has been negotiated with the University of Warsaw, for example, to publish a collection of classic Latin American essays on culture in a bi-lingual Polish-Spanish edition. A number of works have also been translated in Indonesian, including Albert Camus' "La Peste", and it will soon be possible to read Confucius in Hebrew!

Sue WILLIAMS

 A catalogue of UNESCO's Collection of Representative Works can be obtained from UNESCO Publishing, or the Organization's regional offices in Dakar, Caracas, New Delhi and Islamabad.

- JAPAN HAS HAD ITS FIRST SITES
- INSCRIBED ON UNESCO'S WORLD
- HERITAGE LIST - namely Himeji-jo
- Castle and the Buddhist monuments in
- the Horyu-ji areas, and the Yakushima
- and Shirakami-Sanchi natural sites.
- The World Heritage Committee, which met
- in Cartagena (Colombia) from December
- 6-11, also approved 25 other sites
- including: Joya de Cerón (El Salvador);
- Maulbronn Monastery complex and
- Bamberg (Germany); Humayun's Tomb,
- Qutb Minar and its monuments (India);
- Bend of the Boyne archaeological site
- (Ireland); I Sassi di Matera (Italy); the
- Zacatecas monuments, rock art of Sierra
- de San Francisco and the whale refuge in
- the El Vizcaino lagoons (Mexico);
- Tongariro National Park (New Zealand);
- the Jesuit Missions of La Santísima
- Trinidad de Paraná, Jesús de Tavarangua,
- and Santos Cosme y Damián (Paraguay);
- Baroque churches of the Philippines and
- the Tubbataha Reef Marine Park there;
- the fortified church of Biertan and the
- painted churches of northern Moldavia
- (Romania); the architectural ensemble of

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SERGIEV POSAD MONASTERY IN THE RUSSIAN FEDERATION (Photo UNESCO).

- the Trinity-Sergius Lavra in Sergiev
- Posad (Russian Federation); the historic
- town of Banská Štiavnica and the
- technical monuments in its vicinity,
- Vlkolínec Reservation of Folk Architec-
- ture and the Spišský Hrad castle (Slovak
- Republic); the archaeological ensemble of
- Mérida, the Royal Monastery of Santa
- Maria de Guadalupe and the Route of
- Santiago de Compostela (Spain); Birka
- and Hovgarden and the Engelsberg Iron
- Works (Sweden); Coro and its dunes
- (Venezuela); Hue (Viet Nam); and the
- medina of Zabid (Yemen).

THEIR OWN DREAMS

● **"KIJU YOSHIDA MEETS MADAME BUTTERFLY"** by Olivier Horn has won the Grand Prize of the XVII International Festival of Art Films, held at UNESCO at UNESCO from November 18-30.

The 50 minute film presents the Japanese film-maker at work on his first opera - Puccini's *Madame Butterfly* - which he transforms into a Shakespearean tragedy. The film was selected from 65 entries submitted by 20 countries. The annual festival pays tribute to original works on the creative process - a sort of dialogue between film-maker and artists, such as painters, sculptors, musicians or poets.

▼ **"TIME TO ACT"** was the theme of this year's World Aids Day, celebrated on December 1st. Part of UNESCO's contribution was the video film entitled *"It's Time for Schools to Act"*, which illustrates school-based activities for AIDS prevention in different parts of the world - a number of them carried out with UNESCO and the World Health Organization. It also features a message from Director-General Federico Mayor, who stresses that "where (preventative) actions now exist, they must be multiplied, and where there are none, they must be set up...not only to fight against the pandemic but also to call a halt to exclusion and discrimination against those infected".



Visions of Africa through African eyes.

"All our mothers have been mothers to little white boys and nurses to old dying white men - 'Rwendo' is a film about these ambiguous relationships between colonizers and the colonized, as well as a re-examination of my country's history seen from suburban England."

"Rwendo" is the first film made by Farai Sevenzo, 29, one of the first students to pass through UNESCO's Zimbabwe Film Training Project. The project provided Sevenzo with a pass-key to study at the British Film and Television School, where he produced and directed his film which recently won the Organization of African Unity's Best Film award at the recent Southern Africa Film Festival in Harare.

The project's first 3-year phase kicked off in 1991 with a budget of \$2.1 million provided by the Danish aid agency DANIDA. The aim was to provide Zimbabwe and neighbouring countries with a core of professional film-makers and technicians. Although it is considered one of Africa's most developed countries in terms of

as 'Cry Freedom', 'A World Apart' and 'A Dry White Season' - so there were a number of partly trained people dreaming other peoples dreams, but not their own," says Mamoun Hassan from the British Film and Television School, and course director for UNESCO in Harare.

Training was offered in film production and utilization, including script writing, direction, camera operation and sound engineering, lighting, make-up, costume and wardrobe. "One of the big advantages of the course," says Farai Sevenzo "is that it did not insist on a right or wrong way to do things, but pushed the participants to explore their own ideas and talent."

According to Hassan, the training course has turned up some remarkable talent. "The four films produced offer a new look at themes like AIDS and dowry seen through African eyes. Had these sensitive subjects been dealt with as dull, factual documentaries, they would be unacceptable to many Africans. Created by Africans out of their own culture, their own soil,

SEVENZO ON THE RWENDO FILM SET WITH LEAD ACTOR FRANK WINDSOR (Photo Farai Sevenzo).



mass media, Zimbabwe's newspapers, radios and television stations mainly serve urban areas, while 80 percent of the population live in rural zones. On top of this, most media professionals left the country when independence was declared in 1980. And yet radio and television can serve as powerful vehicles for economic, social and cultural development - providing there is sufficient infrastructure and enough trained people to produce the programmes.

"Several major films have been made in Zimbabwe by foreign producers - such

these films have the sensitivity and use the social codes that render them acceptable, and make them powerful messengers."

The search is now underway to find the funds for the project's second phase, which aims to establish a single institute for mass communication education including film, television, radio and print journalism.

Meanwhile, Farai Sevenzo is working on his next film, 'Pagomo' - a look at the effect of war on African children.

Sue WILLIAMS

NEW DEAL IN NEW DELHI

Leaders of nine high population countries, meeting in New Delhi pledge to intensify efforts to assure education for all.

Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria and Pakistan, the nine high population countries which account for 70 per cent of international statistics on illiteracy among adults have reiterated their commitment to providing universal primary education and expanding

Delhi would be remembered as a turning point in international co-operation. It will then have marked the start of a New Deal for the world's people", he said.

Three items received particular attention. Firstly, participants evoked the question of training for girls and women and



PRIORITY
TO WOMEN
(Photo
UNESCO/
Hunnar
Publicity).

learning opportunities for adults and particularly women.

Outlined in the "Delhi Declaration" adopted at the Education for All Summit in New Delhi, India, 16 December 1993, participating Leaders emphasized that "the aspirations and development goals of our countries can be fulfilled only by assuring education for all our people".

Hosted by India and sponsored jointly by UNESCO, UNICEF and the United Nations Populations Fund (UNFPA), the Summit was preceded by a three day preparatory Summit featuring four panels: education and society, organized by UNESCO; people's participation and decentralization lead by UNICEF; girls' and women's education, population issues and women's empowerment, directed by UNFPA; and external and internal financial resources for EFA chaired by India.

In his address to the Summit, UNESCO Director-General Federico Mayor said that "a state of educational emergency" should be declared for the duration of the 1990s until universal primary education and adult literacy have been achieved.

"If the world community resolves to make education the means to promote greater equality, to reduce fertility and to foster worldwide human development, New

pledged to give priority to all efforts to remove gender disparities "by the year 2000 or at the earliest possible moment".

"We will eliminate disparities of access to basic education arising from gender, age, income, family, cultural, ethnic and linguistic differences and geographic remoteness", the declaration said.

Secondly, leaders committed themselves to improving the management of national and community resources and ensuring that a larger share of these be channelled into basic education. Thirdly, a special appeal was made to international funding agencies imploring them to recognize education as a critical investment and thus end "tied aid" in this area.

The unanimously signed declaration was accompanied by a Framework for Action outlining the strategies for EFA in the coming years. Heads-of-State unable to attend the Summit will sign the document later.

According to the signatories to the Delhi Declaration, "we will ensure a place for every child in a school or appropriate education programme according to his or her capabilities, in order that no child be deprived of education for lack of a teacher, learning material, or adequate space".

• **TSUNAMI WARNING!** an information booklet, has just been published by the Intergovernmental Oceanographic Commission (IOC). Intended for a broad public, the booklet explains, over 30



pages of text and cartoon drawings, how the powerful waves called Tsunami are formed and why they sometimes reach monstrous heights (up to 100 feet) as they sweep over the shore. Mainly it tells in simply, colourful language what people should expect and do when the phenomenon occurs. The booklet is available free of charge from the IOC, UNESCO, 1 rue Miollis, 75732 Paris Cedex 15, or from the International Tsunami Information Center (ITIC), PO Box 5007, Honolulu, Hawaii 96850, U.S.A.

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.....LOOKING AHEAD.....

To celebrate the **CHINESE NEW YEAR** February 19, UNESCO's "Silk Roads: Roads of Dialogue" Project and the Kital Association of Paris are organizing an **ALL-DAY FORUM** at Headquarters with lectures, films, exhibitions, and, in the evening, a concert of classical (western) music by young Asian musicians. The Third Meeting of the **WORLD COMMISSION ON CULTURE AND DEVELOPMENT** will be attended by some 40 experts from Latin America and the Caribbean, in San Jose (Costa Rica) from February 22 to 26, as one of a series of regional sessions organized by the Commission which will present its final report to the UN General Assembly and UNESCO's General Conference end 1995. A final synthesis meeting of **DIVERSITAS**, the IUBS/SCOPE/UNESCO initiative on the **ECOSYSTEM FUNCTION OF BIODIVERSITY** launched in Bayreuth (Germany) in 1991, will be convened in Astilomar (California, U.S.A.) from February 27 to March 2, with leaders of a series of successive workshops, to identify research priorities and make recommendations for follow-up activities to be taken up by different organizations and programmes such as the International Geosphere-Biosphere Programme (IGBP). The fourth meeting of the Steering Committee of the **FORUM "EDUCATION FOR ALL"** will be held at Headquarters from February 28 to March 2. An Interim Meeting of the Intergovernmental Council of the Programme **MANAGEMENT OF SOCIAL TRANSFORMATIONS (MOST)**, a new international social science research programme being launched by UNESCO, will bring together about 75 specialists at Headquarters from March 7 to 9. The meeting was originally scheduled for end January. Also from March 7 to 9, the Fifth **ROUND TABLE CONFERENCE ON DIPTEROCARPS**, a family (22 genera) of commercially valuable South Asian and African trees, will be organized with UNESCO MAB in Chiang Mai (Thailand). March 8 will be celebrated through the United Nations system as **INTERNATIONAL WOMEN'S DAY**.

OUR NEXT ISSUE will focus on the **IMPACT OF TOURISM** on natural **WORLD HERITAGE SITES**, reporting on unique treasures ranging from the Great Barrier Reef (Australia) and Yellowstone National Park (U.S.A.) to the Galapagos Islands (Ecuador).